# Mobility Protocols and Handover Optimization: Design, Evaluation and Application

**Ashutosh Dutta, Henning Schulzrinne**

<table>
<thead>
<tr>
<th>Format</th>
<th>ISBN</th>
<th>Date</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardcover</td>
<td>978-0-470-74058-3</td>
<td>May 2014</td>
<td>$134.25</td>
</tr>
<tr>
<td>O-Book</td>
<td>978-1-119-94550-5</td>
<td>March 2014</td>
<td></td>
</tr>
</tbody>
</table>

| DESCRIPTION |

*This book provides a common framework for mobility management that considers the theoretical and practical aspects of systems optimization for mobile networks.*

In this book, the authors show how an optimized system of mobility management can improve the quality of service in existing forms of mobile communication. Furthermore, they provide a theoretical approach to mobility management, as well as developing the model for systems optimization, including practical case studies using network layer and mobility layer protocols in different deployment scenarios. The authors also address the different ways in which the specific mobility protocol can be developed, taking into account numerous factors including security, configuration, authentication, quality of service, and movement patterns of the mobiles.

**Key Features:**

- Defines and discusses a common set of optimization methodologies and their application to all mobility protocols for both IPv4 and IPv6 networks
- Applies these technologies in the context of various layers: MAC layer, network layer, transport layer and application layer covering 802.11, LTE, WiMax, CDMA networks and protocols such as SIP, MIP, HIP, VoIP, and many more
- Provides a thorough analysis of the required steps during a mobility event such as discovery, network selection, configuration, authentication, security association, encryption, binding update, and media direction
• Includes models and tables illustrating the analysis of mobility management as well as architecture of sample wireless and mobility test beds built by the authors, involving inter-domain and intra-domain mobility scenarios

This book is an excellent resource for professionals and systems architects in charge of designing wireless networks for commercial (3G/4G), LTE, IMS, military and Ad Hoc environment. It will be useful deployment guide for the architects wireless service providers. Graduate students, researchers in industry and academia, and systems engineers will also find this book of interest.

 ABOUT THE AUTHOR

Dr. Ashutosh Dutta
Dr. Ashutosh Dutta obtained his Ph.D. in EE from Columbia University, M.S. in Computer Science from NJIT, USA and BSEE from NIT, Rourkela, India. As a seasoned mobility and security architect and an accomplished networking and computer science expert with 20-plus years experience, Ashutosh directed multiple IT operations, led the research and development for leading global technology corporations and top university and has in-depth expertise in developing and implementing research, analysis and design initiatives.

His career spanning 25 years includes LMTS (Lead Member of Technical Staff) at AT&T, NJ; CTO Wireless at NIKSUN, NJ; Senior Scientist in Telcordia Technologies, NJ; CRF Director at Columbia University, NY and Computer Engineer with TATA Motors, India. Ashutosh’s research interests include wireless Internet, multimedia signaling, mobility management, 4G networks, IMS (IP Multimedia Subsystems), VoIP and session control protocols. He has published more than 80 conference, journal papers and Internet drafts, three book chapters, and has given tutorials in mobility management at various conferences. Ashutosh has 19 issued security and mobility related US patents.

Ashutosh is a senior member of IEEE and ACM. He has served as an IEEE volunteer and leader at the section, region, chapter, society, MGA, and EAB level. Ashutosh is recipient of the 2009 IEEE Region 1, IEEE MGA and 2010 IEEE-USA Leadership Awards.

Prof. Henning Schulzrinne
Prof. Henning Schulzrinne, Levi Professor of Computer Science at Columbia University, received his Ph.D. from the University of Massachusetts in Amherst, Massachusetts. He was an MTS at AT&T Bell Laboratories and an associate department head at GMD-Fokus (Berlin), before joining the Computer Science and Electrical Engineering departments at Columbia University.

He served as chair of the Department of Computer Science from 2004 to 2009, as Engineering Fellow at the US Federal Communications Commission (FCC) in 2010 and 2011, and as Chief Technology Officer at the FCC since 2012.
He has published more than 250 journal and conference papers, and more than 70 Internet RFCs. Protocols co-developed by him, such as RTP, RTSP and SIP, are now Internet standards, used by almost all Internet telephony and multimedia applications. His research interests include Internet multimedia systems, ubiquitous computing, and mobile systems.

He is a Fellow of the IEEE, has received the New York City Mayor’s Award for Excellence in Science and Technology, the VON Pioneer Award, TCCC service award, the IEEE Region 1 William Terry Award for Lifetime Distinguished Service to IEEE and the UMass Computer Science Outstanding Alumni recognition.